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CLINICAL FEATURE
LETTER TO THE EDITOR



Ersatz ultrasonographic measurements for the knee joint

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To the Editor,

We have taken interest in the article by Siev-Ner I et al. [1], which has been recently published in your journal. While we congratulate the authors for their great effort in calling attention to the value of ultrasound (US) imaging in the management of patellofemoral pain syndrome, we wish to put emphasis on particular issues.

First and foremost, the scanning technique used by the authors to quantify the intra-articular effusion located in the

supra-patellar recess, with the knee flexed at 110 degrees, seems to be technically inappropriate. In fact, for localizing the joint fluid mild flexion (20–30°) of the knee is required [2] because excessive flexion is associated with a shift/squeeze of the intra-articular effusion from the supra-patellar recess to the medial and lateral para-patellar recesses [3].

For the same reason, the medial and lateral sagittal views performed during the US examination might be misleading as

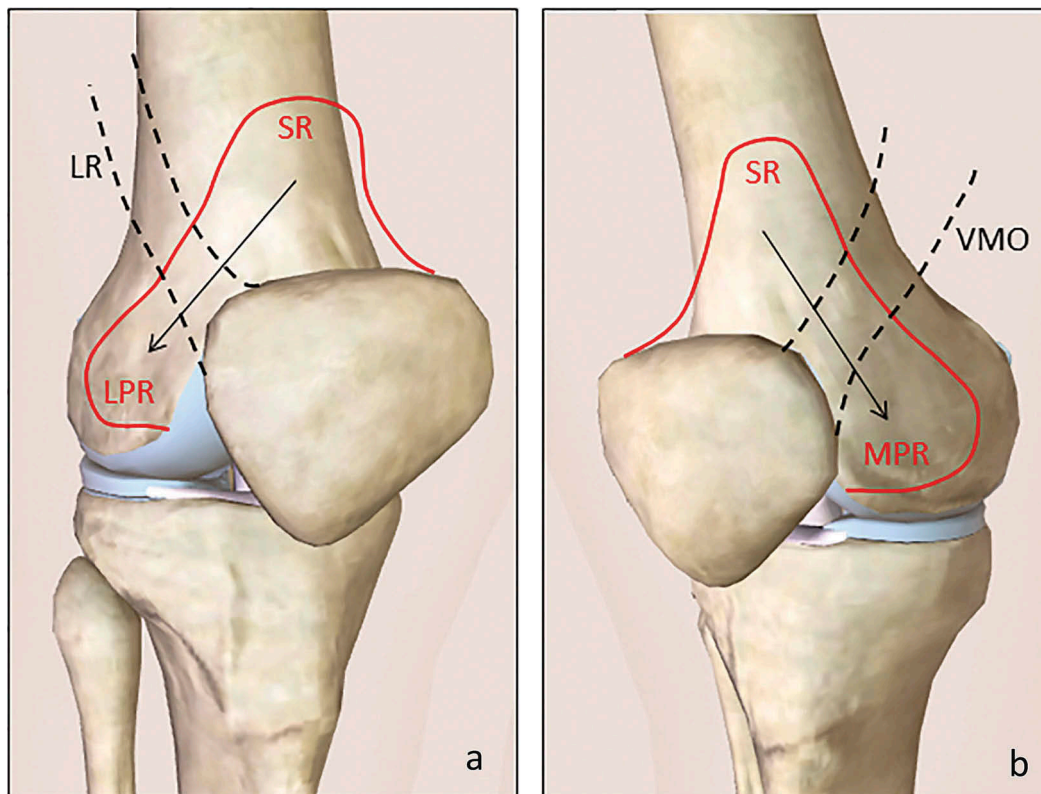




Figure 1. Schematic drawing shows the 'squeeze effect' of the lateral retinaculum on the lateral side (a) and the vastus medialis obliquus muscle on the medial side (b) over the supra-patellar recess with peripheral dislocation of the joint fluid to the para-patellar recesses.

SR: supra-patellar recess, LR: lateral retinaculum, LPR: lateral para-patellar recess, VMO: vastus medialis obliquus muscle, MPR: medial para-patellar recess.

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well. In other words, the vastus medialis obliquus muscle (on the medial side) and the lateral retinaculum (on the lateral side) apply a 'squeeze effect' on the supra-patellar recess with an eventual displacement of the intra-articular effusion to the para-patellar recesses (Figure 1) [3]. Moreover, the lack of posterior US imaging, whereby quantification of the joint fluid is an important parameter, is again an important drawback of this study since the gastrocnemius-semimembranosus bursa is often an important reservoir of intra-articular effusion in the painful knee [4].

Second, concerning the grading of the effusion, which should be based on a validated B-mode US scoring for the pediatric knee as regard the types of the US scans (i.e. supra-patellar, medial parapatellar and lateral parapatellar views) and the morphological features of the joint tissues (i.e. pre-patellar fat pad elevation/dislocation, antero-posterior and cranio-caudal degree of extension of effusion, medial/lateral patello-femoral ligaments bulging) [5].

Third; the limited number of patellar tendinopathies, in contrast to the previous pertinent studies (as the authors also mentioned) [6], could again be related with incomplete US evaluation. For instance, Power Doppler mode, with a precise location of the ROI/region of interest at the level of critical zones for injuries (e.g. deep fibers of the tendon at the proximal insertion), could have been performed for identifying early signs of inflammation or remodeling [7].

Concerning the ultrasonographic measurements of femoral cartilage thickness at the level of the trochlear groove; we agree with the authors to measure at the middle of each condyle but not with the recording of the smallest measurement.

Yet, especially in patients with asymmetric knee loading, focal thickening of the cartilaginous layer should be carefully evaluated because it may represent an early sonographic sign of focal cartilage edema [8]. Of note, in those cases, either using the average values or a semiquantitative grading [9] would also be reasonable alternative methods.

Last but not the least, we need to mention that while taking precise measurements, the technical quality of the images should be high in order not to have blurred/unclear margins of bony or cartilage surfaces (like in Figure 3).

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Declaration of interest

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